

12. Hailey's parents are planning to fly to Disney World during the March Break and will need to rent a car while there. They have researched and found the following options from three companies.

Company	Rate
Billy Bob's Auto Rental	40 cents per kilometre
Drive-O-Matic	\$40 per day plus 10 cents per kilometre
Economy Car Rental	\$224 per week plus 12 cents per kilometre

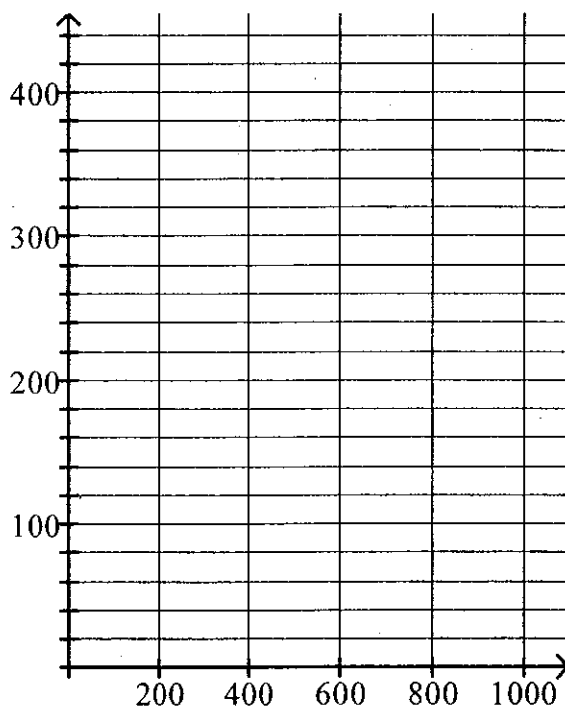
They don't know exactly how far they will drive but estimate that it will be between 500 and 1000 km. They must decide which plan to choose. Explore the three options as directed below. Assume they will need the car for one week (seven days).

- a) Complete the table of values for each rental agency below.

Fill in the table of values below with the costs of each option.

Billy Bob's Car Rental 40 cents per kilometre		Drive-O-Matic \$40 per day plus 10 cents per kilometre		Economy Car Rental \$224 per week plus 12 cents per kilometre	
Kilometres	Cost	Kilometres	Cost	Kilometres	Cost
500		500		500	
600		600		600	
700		700		700	
800		800		800	
900		900		900	
1000		1000		1000	

- b) Draw graphs for the three options below. Label the axes.



c) Analyze the Graphs

i) Each graph contains six points. Is it appropriate to connect the points on the graphs? Explain why or why not.

ii) Do all of the points of each graph lie on a straight line? Why or why not?

iii) Which of the lines is the steepest? What does this imply?

iv) Which of the lines is the least steep? What does this imply?

v) If you extend the lines to cross the y axis, would any of the lines go through the origin. Explain why or why not?

vi) What is significant about the points where the graphs intersect?

- d) Write a mathematical equation for each of the graphs using: y as the total week's car rental cost and x as the number of km driven

Which variable is the dependent variable?

Which variable is the independent variable?

- e) Based on best cost, explain under what conditions the Family should choose each option.

- f) They now know that they will drive approximately 900 km. Given this new circumstance explain which plan they should take?